

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
Division of Mines and Geology

FARMLAND MAPPING AND MONITORING PROGRAM

STATUS REPORT

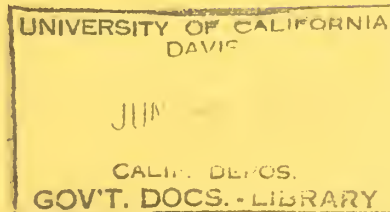
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1985 Status Report

By

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California Department of Conservation,

Division of Mines and Geology

1986

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FARMLAND MAPPING AND MONITORING PROGRAM

1985 STATUS REPORT

I. INTRODUCTION

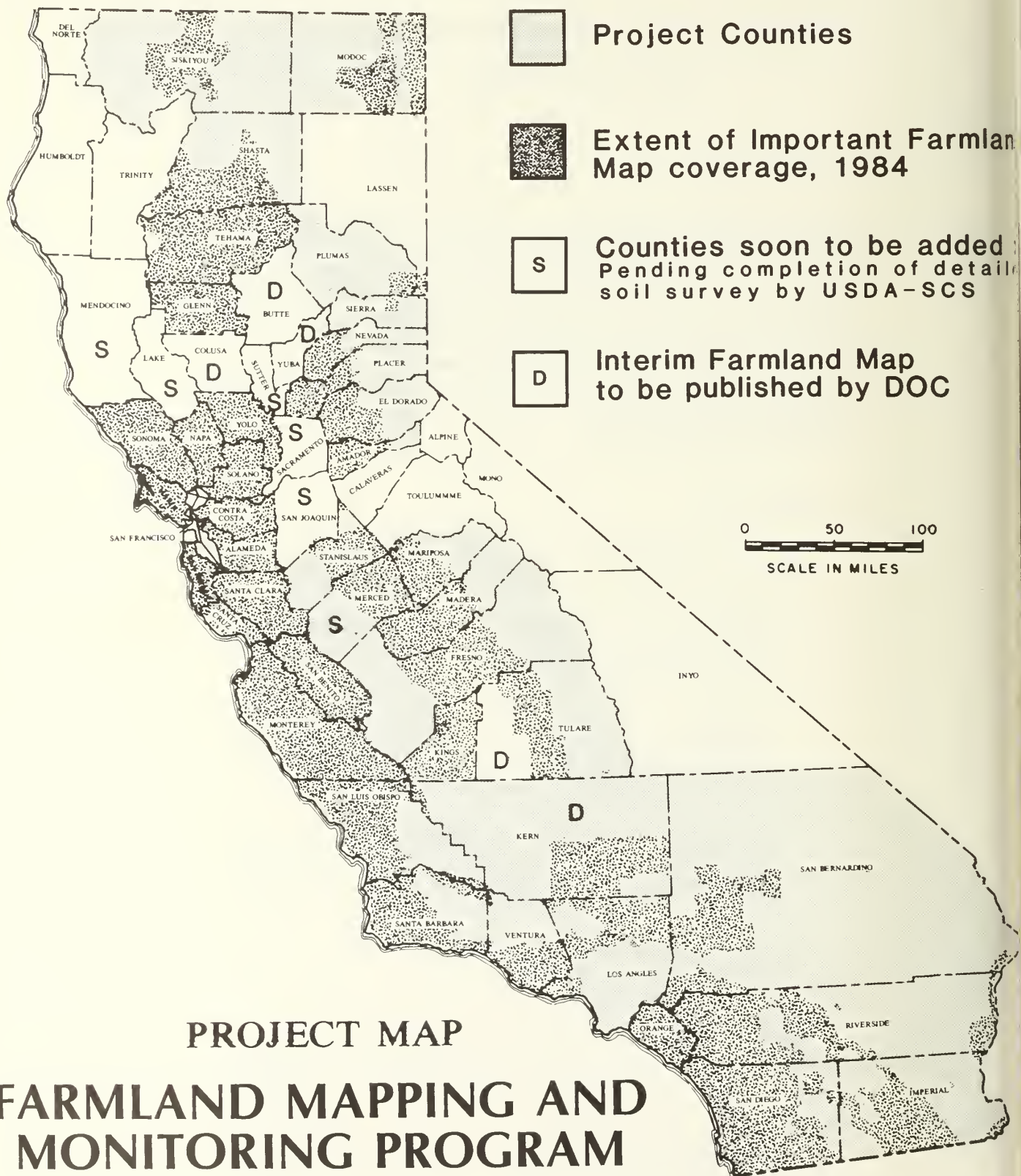
The Farmland Mapping and Monitoring Program was established in the Department of Conservation in 1982 under Chapter 13, Statutes of 1982. The bill establishing the Program enjoyed bipartisan support from both houses of the Legislature, as well as from major agricultural, building, real estate, and environmental groups and from county and city governments. This enabling statute was amended by Chapter 924, Statutes of 1983, which specified that the mapping and monitoring program was intended for information purposes only.

A. Objectives

The basic objectives of the Farmland Mapping and Monitoring Program, as specified by law, are to:

- o Establish a statewide map inventory and computerized data base showing farm and grazing lands in California (MAP);
- o Develop and implement scientifically-based methods to regularly obtain information on farmland conversion activity throughout the state in order to update the maps (MONITOR);
- o Report the amount of agricultural land converted to nonagricultural uses and new land brought into agriculture, on an annual basis, for counties and statewide (REPORT); and,
- o Provide full public access to the farmland maps and computer data base (ACCESS).

Since 1982, Program staff have prepared Important Farmland (IFL) Series maps for 40 California counties. This monumental effort has involved mapping nearly 35 million acres of privately-owned land -- a total exceeding the combined area of the states of Connecticut, Delaware, Hawaii, Maryland, Massachusetts, New Hampshire, Rhode Island, and the Commonwealth of Puerto Rico.



B. Classification Methodology

The Important Farmland Series maps, developed in cooperation with the USDA Soil Conservation Service (SCS), show five categories of crop and grazing land, urban/built-up areas, other lands, and lands committed to future nonagricultural use. Farmland maps are prepared at two different scales -- 1:24,000 for field update work, and 1:100,000 for public review and display. All maps have undergone intensive review by boards of supervisors, planning departments, agricultural commissioners, farm and real estate interests, environmentalists, and the scientific community to insure their accuracy, acceptance, and utility.

In 1984, after extensive public review and input, the Department released "Advisory Guidelines for the Farmland Mapping and Monitoring Program". The Guidelines spell out in detail classification criteria and methodologies to be used in the implementation and operation of the program.

C. Project Coverage

Figure 1 shows the location of the 40 counties that were mapped by the Department of Conservation through December 31, 1985. These counties represent an estimated 75 percent of California's cropland and 70 percent of the state's privately owned grazing land. Eventually, all agricultural counties will be mapped, either as the SCS completes modern soil surveys, or as part of the Program's Interim Farmland Maps (see Future Activities). The Important Farmland Series maps will provide decision makers and the general public with timely and accurate information on the status of farm and grazing land in the nation's leading agricultural state, as well as conversion trends affecting California's \$14 billion per year farming industry.

II. OPERATIONS

The Farmland Mapping and Monitoring Program was initiated using USDA Soil Conservation Service-supplied 1:100,000 scale maps showing the State's Important Farmlands. To insure the pinpoint accuracy needed for accurate data gathering and computerized cartography, the Program entered an extensive field-checking and precision map compilation phase, during which the maps were reviewed and modified.

A. Map Compilation

To carry out field-checking activities, the Program employed geography and cartography students from the State Universities at Chico, Sacramento and Northridge. These mappers were trained to use photo interpretation techniques in combination with field-checking, and were versed in the Program's land classification methodologies.

Under the direction of the Program's professional land-use mapping staff, these mappers used detailed 1:24,000 scale U. S. Geological Survey quad map sheets and recent aerial photography from NASA, the U.S. Forest Service, the California Department of Forestry, and the Department of Water Resources to photo-interpret land-use changes which had occurred since the SCS's original 1978-80 Important Farmland mapping. Next, the mappers field-checked the more difficult or questionable photo observations, and from direct on-the-ground observation, verified the many detailed criteria used in farmland mapping.

After driving thousands of miles of county back roads, the field-checkers returned to Sacramento and carefully cross-checked their results with the original SCS soil surveys and farmland maps to insure accuracy.

Using precision cartographic compilation techniques, the 1:24,000 scale field maps were recompiled to the 1:100,000 scale county map sheet format. Blueprint review maps were then reproduced from these Program-created county maps. As a further check, and as a courtesy to local governments and county residents, these "Draft Review" maps were presented to county boards of supervisors. Working closely with planning departments and residents, Program staff further refined the maps.

B. Computerization and Products

The corrected maps were then computerized using a Scitex laser scanner, a precision process that allows the maps to be transformed into computer-readable magnetic tape. After reaching this point, Program staff performed the difficult technical task of developing their own computer programs to digitally revise (or update) the maps and to produce statistical acreage reports.

Computer-generated products resulting from this work, and currently available, include:

- o County Important Farmland map sheets at a scale of 1:100,000.
- o Field map quad sheets of Important Farmlands at a more detailed scale of 1:24,000.
- o Acreage statistics on any Program data contained on the map sheets.

Reflecting 1984 data, these products are available now for 11 counties. They will become available for the other 29 project counties during the course of 1986 (see Table 1 for schedule of availability). Also available are the "Draft Review" blueprint 1:100,000 scale Important Farmland map sheets for all 40 project counties and copies of the Advisory Guidelines.

TABLE 1
Farmland Mapping and Monitoring Program
Project Counties, Acreages, and Planned Reports

PROJECT COUNTIES	PLANNED DATE FOR RELEASE OF 1984 BASE YEAR DATA	IMPORTANT FARMLAND				TOTAL IMPORTANT FARMLAND	GRAZING LAND
		PRIME	STATEWIDE	UNIQUE	LOCAL		
Alameda	November 1985	9,535	1,832	1,190	0	12,557	256,967
Amador	November 1985	3,555	1,509	2,297	4,450	11,811	192,416
Contra Costa	January 1986	41,137	15,523	8,057	50,875	115,592	185,418
El Dorado	June 1986						
Fresno	October 1986						
Glenn	January 1986	169,220	88,700	9,904	145,558	413,382	175,316
Imperial	May 1986						
Kern	June 1986						
Kings	February 1986	148,446	415,393	25,758	0	589,597	226,631
Los Angeles	June 1986						
Madera	November 1985	104,244	86,267	155,335	43,975	389,821	409,515
Marin	February 1986	179	307	106	72,860	73,452	94,794
Mariposa	February 1986	15	104	29	0	148	414,707
Merced	March 1986	163,254	124,465	80,554	48,548	416,821	215,126
Modoc	July 1986						
Monterey	July 1986						
Napa	March 1986						
Nevada	February 1986						
Orange	December 1985	19,737	2,091	4,485	0	26,313	40,681
Placer	March 1986						
Plumas (Note 4)	see Sierra/Plumas						
Riverside	May 1986						
San Benito	March 1986						
San Bernardino	August 1986						
San Diego	September 1986						
San Luis Obispo	August 1986						
San Mateo	December 1985	2,031	142	2,173	3,609	7,955	44,301
Santa Barbara	May 1986						
Santa Clara	December 1985	37,653	5,405	461	7,040	50,559	411,112
Santa Cruz	April 1986						
Shasta	August 1986						
Sierra/Plumas	December 1985	5,153	5,626	2,728	72,052	85,559	109,682
Siskiyou	February 1986						
Solano	December 1985	151,630	12,566	16,208	0	180,404	219,563
Sonoma	April 1986						
Stanislaus	November 1986	189,828	16,734	46,370	38,264	291,196	124,695
Tehama	September 1986						
Tulare	October 1986						
Ventura	April 1986						
Yolo (Note 5)	December 1985	272,189	23,051	56,940	96,275	448,455	121,593
TOTALS (data as available 12/31/85)		1,317,806	794,715	412,595	583,506	3,113,622	3,242,517

Note to Reader: Data not indicated are currently undergoing computerized revision using 1984 Base Year mapping. 1984 acreage reports and maps are scheduled for release as indicated above.

Note 1: Area mapped represents the extent of Important Farmland mapping, derived in part, from USDA Soil Conservation Service county soil surveys.

Note 2: Percent Mapped is that portion of each county as mapped by the Farmland Mapping and Monitoring Program (FMMP).

Note 3: Source: California Regional Framework Study, Base Year 1965. Prepared by the California Regional Framework Study Committee for Pacific Southwest Inter-Agency Water Resources Council.

Note 4: This is the tri-county survey of Sierra Valley, and includes 37,300 acres of grazing land and minor acreages of Important Farmlands in Lassen County.

Note 5: Yolo County's Local Important Farmlands include 33,349 acres of "Local Potential" lands.

TABLE 1 (Continued)
Farmland Mapping and Monitoring Program
Project Counties, Acreages, and Planning Reports

PROJECT COUNTIES	TOTAL AGRICULTURAL AREA	URBAN BUILT-UP LAND	OTHER LANDS	WATER AREA	COUNTY AREA MAPS MAPPED (Note 1)	% MAPPED BY FMMP (Note 2)	COUNTY AREA NOT SURVEYED	TOTAL COUNTY AREA (Note 3)
Alameda	269,524	127,245	75,102	56,399	528,270	100	0	528,270
Alameda	204,227	6,061	84,541	5,357	300,186	78	84,624	384,810
Contra Costa	301,010	120,952	47,798	40,920	510,680	100	0	510,680
El Dorado					579,125	50	575,915	1,155,040
Fresno					1,423,472	37	2,415,348	3,838,820
Glen	588,698	5,162	250,300	0	844,160	100	0	844,160
Imperial					1,048,688	36	1,893,652	2,942,340
Kern					1,411,316	27	3,817,684	5,229,000
Kings	816,228	12,879	89,564	119	918,790	100	0	918,790
Los Angeles					1,077,866	41	1,532,864	2,610,730
Madera	799,336	20,854	35,350	5,928	861,468	63	512,692	1,374,160
Marin	168,246	37,683	126,871	43,500	376,300	100	0	376,300
Mariposa	414,855	4,432	69,293	0	488,580	52	446,110	934,690
Merced	631,947	21,389	5,910	594	659,840	51	625,090	1,284,930
Modoc					824,124	30	1,953,746	2,777,870
Monterey					2,127,430	100	0	2,127,430
Napa					510,010	100	0	510,010
Nevada					291,313	46	343,697	635,010
Orange	66,994	228,042	205,594	1,810	502,440	100	0	502,440
Placer					411,655	43	552,485	964,140
Plumas (Note 4)					0	0	1,675,780	1,675,780
Riverside					1,932,144	42	2,703,396	4,635,540
San Benito					894,150	100	0	894,150
San Bernardino					1,474,484	11	11,430,476	12,904,960
San Diego					2,204,880	80	534,680	2,739,560
San Luis Obispo					1,302,107	61	826,693	2,128,800
San Mateo	52,256	3,277	113,365	0	168,898	50	170,792	339,690
Santa Barbara					1,636,550	93	120,030	1,756,580
Santa Clara	461,671	174,144	197,465	8,880	842,160	100	0	842,160
Santa Cruz					281,360	100	0	281,360
Shasta					1,020,455	41	1,443,685	2,464,140
Sierra/Plumas	195,241	732	2,157	0	198,130	32	415,370	613,500
Siskiyou					887,765	22	3,155,945	4,043,710
Solano	399,967	40,394	88,919	28,930	558,210	100	0	558,210
Sonoma					1,022,460	100	0	1,022,460
Stanislaus	415,891	41,166	15,796	5,327	478,180	49	495,400	973,580
Tehama					1,836,543	96	68,097	1,904,640
Tulare					815,360	26	2,285,350	3,100,710
Ventura					548,874	46	643,806	1,192,680
Yolo (Note 5)	570,048	20,813	63,915	6,984	661,760	100	0	661,760
	6,356,139	865,225	1,471,940	204,748	34,460,183	46	40,723,407	75,183,590

Press Note: Data available after text was written, were added before going to press.

III. ACCOMPLISHMENTS

The Farmland Mapping and Monitoring Program is a unique program, the first in the nation to develop and operate a land-use mapping system utilizing a computer to store, update and process mapped information.

A. Program Milestones

Starting almost from scratch, the Program has:

- o Developed an operational mapping and monitoring program utilizing the latest photo interpretation, land-use mapping and computer cartography technologies;
- o Field-checked for accuracy maps covering some 70.1 million acres in 40 counties;
- o Completed precision cartographic assembly of 88 individual county map sheets at a scale of 1:100,000 for publication of review maps and computerization of mapped data;
- o Developed, in-house, a computerized system to laser scan and convert mapped data into digital map files, allowing revision of the computerized map files, generation of statistical acreage data, and computer plotting of maps;
- o Completed computerization of the entire 88 sheet county set, through a nationwide bid process awarded to Chicago Aerial Survey Incorporated, operator of a Scitex laser scanner;
- o Developed computer software to cost-effectively produce computer-plotted maps from the computer-revised map files.
- o Developed a statewide definition for "Grazing Lands" in cooperation with the U. C. Extension, California Cattlemen's Association, the California Farm Bureau, and other interested groups;
- o Developed a statewide definition for "Lands Committed to Future Non-agricultural Use", in

conjunction with the California Building Industry Association, County Planners Association, Chamber of Commerce and other interested parties, and collected data from 22 cities and 16 counties which chose to participate in this voluntary data gathering; and

- o Provided maps and made detailed presentations to county boards of supervisors and planning departments for all 40 project counties.

B. Recent Achievements

1985 achievements have included:

- o Updating of initial 1982 data with 1984 photo-interpreted and field-checked data;
- o Computerization of 1984 base year data, using the computer-assisted mapping system developed by the Farmland Mapping Program.
- o Development from scratch, of in-house software to generate acreage statistics from updated digital map files; and,
- o Completion of 1984 base year, all-category acreage reports for Alameda, Amador, Madera, Orange, Plumas, San Mateo, Santa Clara, Sierra, Solano, Stanislaus, and Yolo Counties.

C. Public Contact

In addition, the Program has been fulfilling steadily increasing numbers of local government, consultant and public requests for Farmland maps and data. Such requests have averaged five to seven per week. This information is used in both generalized and specialized planning contexts, and has appeared in over one hundred Environmental Impact Reports to date.

Testimony to the Program's uniqueness and value of its data, is the high degree of interest shown by such states as Florida, Michigan and New York, as well as the nations of Germany, Canada and Australia, in the Program's mapping, monitoring and computer operations. In 1984, the American Farmland Trust awarded the Program its "National Farmland Conservation Award", citing its "state-of-the-art computer assisted mapping and monitoring program".

IV. FUTURE ACTIVITIES

In 1986, the Program will complete computerization of the 1984 base year data and maps for the remaining 29 counties.

A. 1986 Updating

The Program will also begin the 1986 (second) update, in cooperation with local governments. For the Department, this will involve the hiring and intensive training of field crews, and another round of aerial photo interpretation and field-checking. Using the updated information, the computer mapping system will be utilized to revise the digital map files and to generate acreage statistics. Information on "Lands Committed to Future Non-agricultural Use" will continue to be collected from counties which choose to provide the information. Data from the second update will be compared to the base year data to generate 1984 to 1986 conversion statistics.

B. Interim Farmland Mapping

The Program will also begin compilation of Interim Farmland Maps for five counties in which SCS soil surveys will not be completed for a number of years. These counties (Butte, Colusa, Yuba, and portions of Kern and Tulare) together produce agricultural products valued at almost \$1.4 billion. Interim Farmland Maps will be based on simplified farmland categories showing irrigated, dryfarmed and grazed lands, and urban built-up areas. The Program will acquire aerial photos, photo-interpret land-use features, and conduct field-checking in the five interim counties. Data will then be computerized and maps produced as in the original 40 project counties. This additional information will increase the Program's data base to include approximately 85 percent of the state's irrigated farmland.

V. 1984 BASE YEAR ACREAGE

1984 is the Program's base year as set in the Advisory Guidelines. All future conversion information will be compared to 1984 data, making accuracy for the base year especially important. By the end of 1986, complete 1984 data will be available for all the project counties. Currently, complete data is available for eleven counties.

Table 1, "1984 Project Counties, Acreages and Planned Reports", shows acreages in each of the Important Farmland categories for the eleven counties. Also shown are gross farmland acreages for the remaining 29 counties, as well as the date when complete maps and information on each county should become available.

The Farmland Mapping and Monitoring Program is looking forward to a challenging and productive year in 1986. If you have any inquiries regarding the Program, please address them to:

Program Manager
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